



U.S. Department of Justice

United States Attorney
Southern District of New York

The Silvio J. Mollo Building
One Saint Andrew's Plaza
New York, New York 10007

June 17, 2022

BY EMAIL

Michael Freedman, Esq.
Counsel for Donnell Russell

Re: *United States v. Donnell Russell*, 20 Cr. 538 (PGG)

Dear Counsel:

Pursuant to Rule 16(a)(1)(G) of the Federal Rules of Criminal Procedure, the Government hereby provides notice of the expert testimony that it currently expects to offer at trial in the above-referenced case. The Government reserves the right to call additional expert witnesses and will promptly provide notice if it elects to do so. The Government also requests reciprocal discovery as set forth below.

Radio Frequency Design Engineering / Cell Site Location Expert

The Government expects to call Professional Engineer Andrew Petersohn from dBm Engineering to testify about cellular network operations, including but not limited to their design, coverage, testing, and performance. Mr. Petersohn is expected to testify, for example, that: (1) each cellular service provider's networks consists of cell sites, which are designed to provide service to the provider's customers in a given area; (2) providers locate, arrange, and optimize cell sites with the goal of ensuring sufficient geographical coverage and capacity to service all users; (3) to accomplish these goals in densely populated urban environments, service providers place multiple cell sites, each of which is intended to service a relatively small geographical area that typically spans a few city blocks, depending on the surrounding geography and topography, and the proximity of nearby sites; (4) wireless devices (including cellphones) are designed to meet universal industry protocols by which phones connect to the cell site that provides the strongest and clearest signal, which is often (but not always) the nearest site; (5) these protocols are a necessity within the industry because they allow cell networks to reliably, predictably, and efficiently service customers and allow for wireless device inter-operability across different sites, regions, and manufacturers; and (6) analyzing cell site location data obtained from service providers is a reliable way to approximate the geographical area or range within which a wireless device was likely located at the time of the connection to the cell site, including for wireless devices serviced by T-Mobile / Sprint, AT&T, and Verizon in or about 2018.

Mr. Petersohn's *curriculum vitae* is attached, and it describes his training, education, and experience. The Government is also aware of certain prior court cases in which Mr. Petersohn testified as an expert in radiofrequency design. Please note that this list is provided as a courtesy

and is merely a representative sample, not a comprehensive list, of Mr. Petersohn's prior testimony.¹

- *United States v. Scales*, 19 Cr. 96 (S.D.N.Y. 2021)
- *United States v. Shabazz* (D.N.J. 2005)
- *New Cingular Wireless (AT&T) v. Zoning Hearing Board of Weisenberg Township et al.*, 06 Civ. 2932 (HSP) (E.D. Pa.)
- *AT&T v. Kutztown* (Berks County Court, Reading, Pennsylvania, May 2012)
- *Skyway Towers LLC v. Myron Tomb Jr.*, No. 11611-CD-2015 (Indiana County, PA Court of Common Pleas Feb. 2018)
- *New York v. Lema-Yaucan*, No. 356/2017 (Rockland, NY County Court, May 2019)

The Government expects Mr. Petersohn to offer expert opinion about the likely approximate locations of various cellphones relevant to this case at the times they connected to cell sites in December 2018. As a general introduction to the subject matter, Mr. Petersohn will likely testify that cellular phones and networks are designed for phones to connect to the cell site that provides the strongest and clearest signal, and that is often the site in closest geographic proximity because, as a matter of physics (and reducible to a mathematical formula), the strength of a radio signal decreases proportionally to the distance squared. He will also likely testify that cellular technology relies on the fundamental design principle that cellphones are programmed to connect to the cell site that is providing the strongest and clearest signal, and they do so per universal industry protocols. He will also likely testify about some of the reasons the nearest site may not provide the strongest and clearest signal, including geography and topography of an area (*i.e.*, natural and man-made obstructions). Even when the geographically nearest cell site does not provide the strongest signal, the second-nearest site likely would, for the same physical and mathematical reasons noted above. In Mr. Petersohn's extensive experience conducting drive tests to analyze cellular networks' performance, he has always observed cellphones connect to one of the nearest three or four immediately surrounding sites. For all of these reasons, Mr. Petersohn believes that reliable conclusions can be drawn about the approximate location of a cellphone at the time of a cell site connection, especially when analyzing cell sites in urban areas that have dense cellular networks.

Mr. Petersohn will likely testify that at the time of each connection to a particular cell site (the "Connected Site"), the relevant cellphone was likely located within a distance of the Connected Site that is slightly more than halfway between the Connected Site and the nearest adjacent cell site in a particular direction. For Connected Sites that are divided into sectors (*i.e.*, the 120-degree wedge shaped area denoted by dashed lines and arrows extending from the Connected Site), Mr. Petersohn will likely testify that the phone was likely within the area slightly more than halfway between the Connected Site and the next-nearest cell site in the direction the sector faces. For micro-cell and small-cell sites that do not have sectors, Mr. Petersohn will likely testify that they are "omni" sites, meaning that they service phones in all directions, 360 degrees, and as a result (and due to their shorter antennae center lines) also have smaller coverage ranges

¹ In addition to court testimony, Mr. Petersohn has testified in a large number of municipal hearings, regarding matters such as cell site placement and zoning.

relative to nearby micro- or macro-sites. This means that location records from such omni sites give no indication of the phone's direction at the time of the connection but indicate that the phone was likely closer than halfway to the next nearest cell site in any direction.

Finally, based on his review of certain historical cell site data obtained from various cellphone providers, which were previously disclosed to you, Mr. Petersohn will likely testify concerning his expert opinion of the location of those cellphones at multiple times on or about December 4, 2018. We are attaching a draft presentation of what we expect Mr. Petersohn to testify to during trial. We will provide additional materials closer to trial.

Mr. Petersohn is expected to base these opinions on training, education, and experience—including his work in the radiofrequency engineering field and his participation in drive tests conducted for the purpose of evaluating cellular network performance through real-time tracking of cellular devices' network connections—as well as various engineering and technical principles relating to radio frequencies and cellular network design and operations that he has worked with and relied on throughout his career.

Demand for Reciprocal Discovery and Expert Notice

In light of your request for the foregoing notice, the Government hereby requests reciprocal notice under Fed. R. Crim. P. 16(b)(1)(C) regarding any expert witness that the defendant intends to rely upon, including a written summary of any testimony that the defendant intends to use under Rules 702, 703, or 705 of the Federal Rules of Evidence. Such summary must describe the witness's opinions, the bases and reasons for those opinions, and the witness's qualifications.

Additionally, the Government reiterates its request for reciprocal discovery under Fed. R. Crim. P. 16(b). Specifically, we request that you allow inspection and copying of: (1) any books, papers, documents, data, photographs, tangible objects, buildings or places, or copies or portions thereof, which are in the defendant's possession, custody or control, and which the defendant intends to introduce as evidence or otherwise rely on at trial; and (2) any results or reports of physical or mental examinations and of scientific tests or experiments made in connection with this case, or copies thereof, which are in the defendant's possession or control, and which the defendant intends to introduce as evidence or otherwise rely on at trial or which were prepared by a witness whom the defendant intends to call at trial.

The Government also reiterates its request that the defendant disclose prior statements of any witnesses he will call to testify, including expert witnesses. *See* Fed. R. Crim. P. 26.2; *United States v. Nobles*, 422 U.S. 225 (1975).

Very truly yours,

DAMIAN WILLIAMS
United States Attorney

by: s/
Peter J. Davis / Lara Pomerantz
Assistant United States Attorneys
(212) 637-2468 / 2343

EXHIBIT A

Andrew Marshall Petersohn, P.E.

PO Box 165
Fairview Village, PA 19409
(610) 304-2024
Andrew@dBmEng.com

Education:

Lehigh University, Bethlehem, PA
Master of Engineering, Electrical Engineering, May 2005
Bachelor of Science, Electrical Engineering, May 1999

Professional Associations:

Registered Professional Engineer
Pennsylvania License number 073239
Maryland License number 32840
Delaware License number 14438
Virginia License number 042672
New York License number 084382
New Jersey License number GE49376
Florida License number 84819

Member of the National Society of Professional Engineers
Member of the Pennsylvania Society of Professional Engineers

Related Experience:

Principal Engineer, dBm Engineering, P.C., Fairview Village, PA
January 2006 – Present
Senior Engineer II, Wireless Facilities Incorporated, King of Prussia, PA
January 2004 – January 2006
Radio Frequency Engineer, Nextel Communications, Bensalem, PA
October 2001 – January 2004
Wireless Consultant, Millennium Engineering, P.C., Conshohocken, PA
May 2001 – October 2001
Member of Technical Staff, Wireless Microsystems, Reading, PA
June 2000 – May 2001
Systems Engineer, Raytheon N&MIS, Portsmouth, RI
July 1999 – June 2000
Radio Frequency Design Co-Op, Verizon Wireless, Plymouth Meeting, PA
October 1997 – April, 1999

EXHIBIT B

CALL DETAIL RECORDS (CDR) ANALYSIS

PHONE NUMBER(S) ANALYZED:

TIME PERIOD:

U.S. V RUSSELL
PREPARED BY: ANDREW PETERSOHN
DBM ENGINEERING
DATE OF REPORT: 5/24/2022

Cell Sites in Suburban / Rural Areas



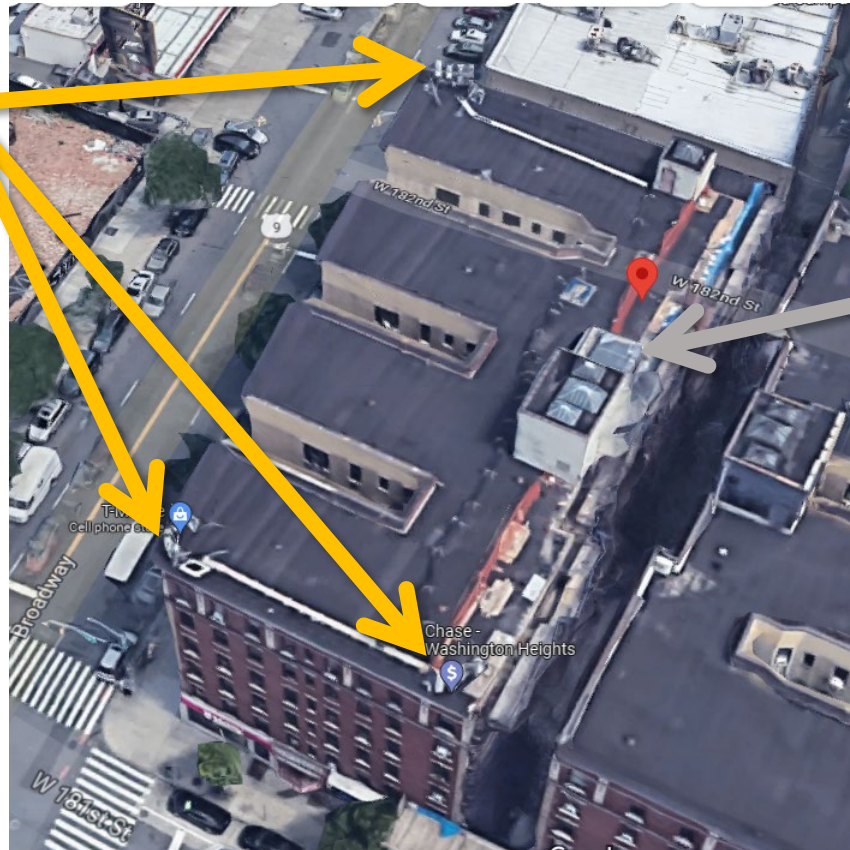
Cell Sites in Urban Areas (NYC)



Example of a Rooftop Cell Site

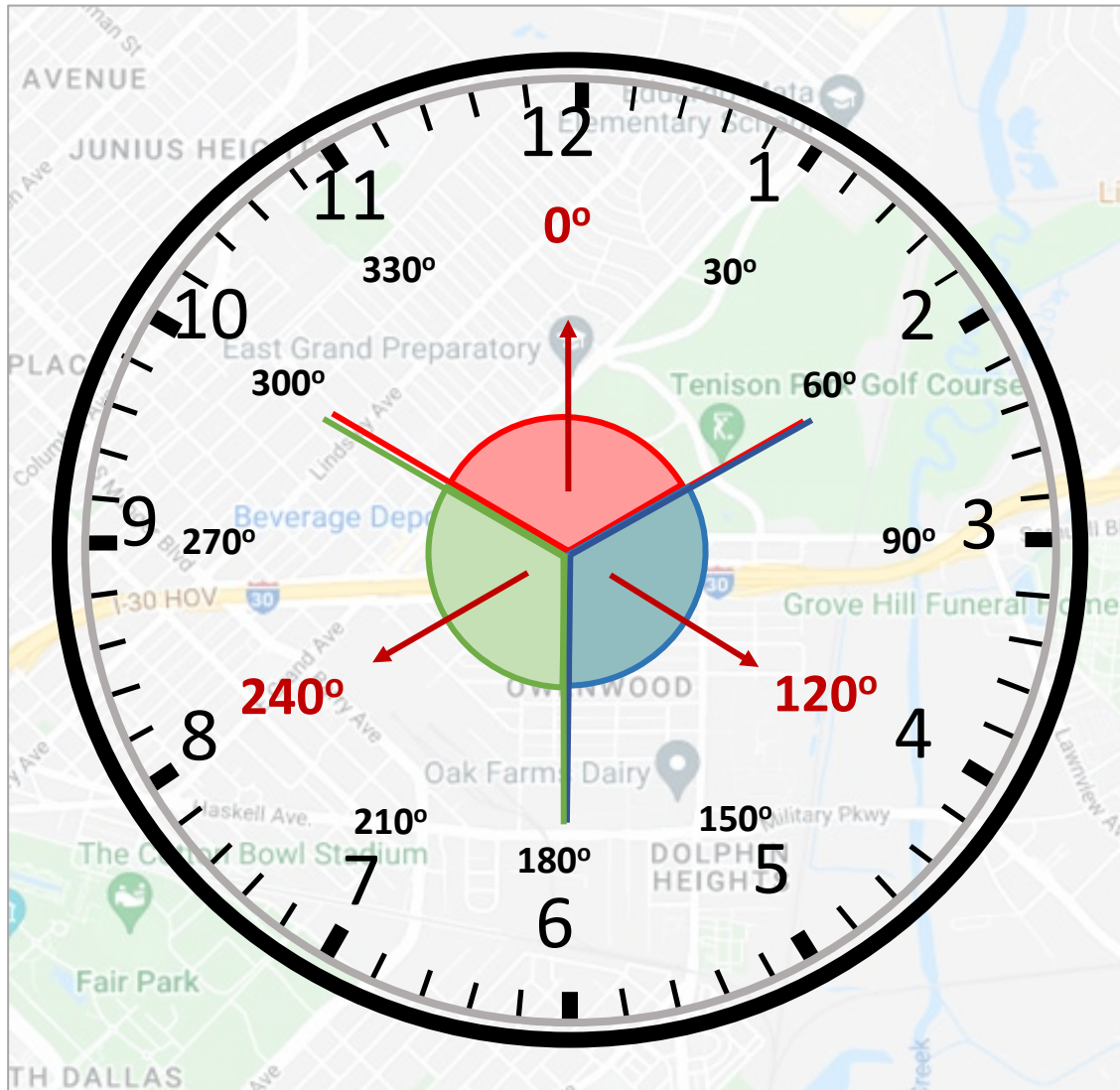
4260 Broadway, New York, NY 10033

3
Sectors



Equipment
Platform

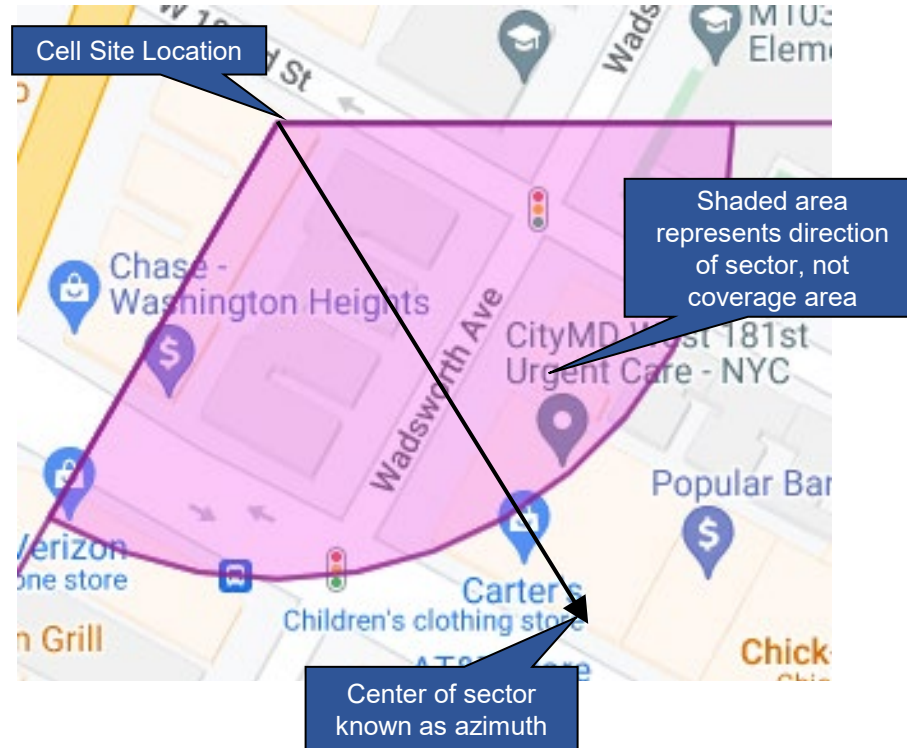
Example Sector Azimuth Orientation



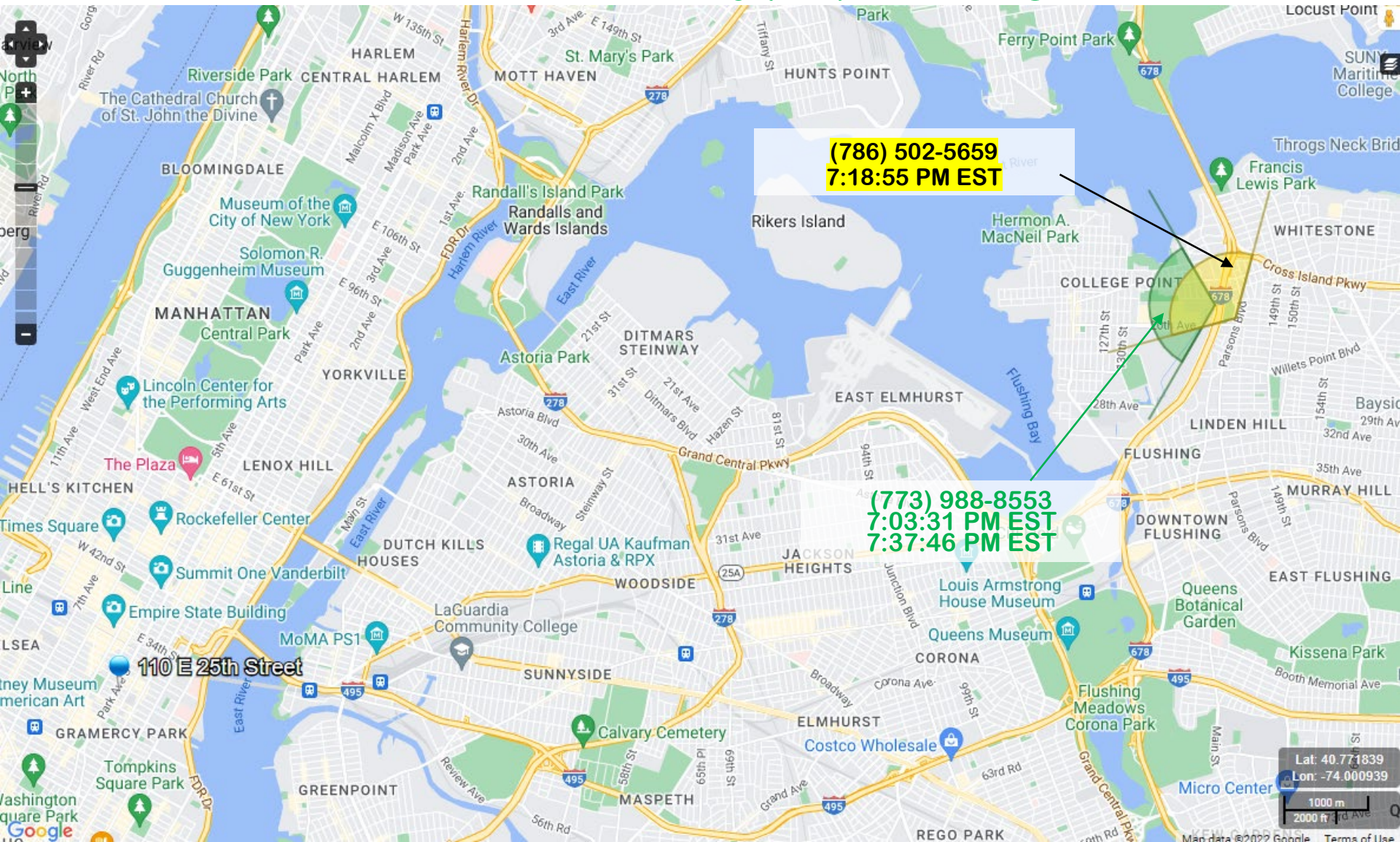
Displaying Cell Site, Sector and Azimuth

Cell Location

40.850553, -73.935097, @ 150°



Cell Site Location utilized by (786) 502-5659 yellow
Cell Site Location utilized by (773) 988-8553 green



6 PM to 8 PM EST

Cell Site Location utilized by (312) 513-1020 red
Cell Site Location utilized by (312) 203-3030 orange
Cell Site Location utilized by (312) 975-5608 purple

